



**Secretary of State  
Bruce McPherson  
State of California**

**PARALLEL MONITORING PROGRAM  
NOVEMBER 7, 2006 GENERAL ELECTION  
Parallel Monitoring Report of Findings**

**PREPARED BY:**

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## Executive Summary

## Executive Summary

### Introduction

In an effort to instill confidence and to ensure the integrity and accuracy of votes cast on electronic voting machines used in the November 7, 2006 General Election, Secretary of State Bruce McPherson placed specific conditions on their use. One such condition was to employ a Parallel Monitoring Program (Program) that allowed for independent and auditable testing of each type of electronic voting machine in use in California under a real-time Election Day environment. The Program was first implemented in 2004 as a supplement to the current certification, volume, and logic and accuracy testing processes imposed on electronic voting machines. The Secretary of State, in conjunction with eight participating counties, implemented this Parallel Monitoring Program for electronic voting machines for the November 2006 General Election.

The consulting firm of Visionary Integration Professionals, LLC (VIP) was engaged to implement the Program for the November 2006 General Election and to report findings and observations from this testing.

### Program Purpose

Currently, federal, state and county elections experts conduct a variety of tests on electronic voting machines during qualification, certification, acceptance, and election set-up stages prior to their use in actual elections. However, these testing processes cannot mirror real-life voting conditions. Therefore, the Parallel Monitoring Program was developed as a supplement to the current logic and accuracy testing process and as a means of testing actual equipment during true Election Day conditions.

The goal of the Program is to verify that there is no code within the systems capable of and actually altering vote results on these devices by testing the machines on Election Day under conditions that simulate the actual voting experience in the selected precincts. If, as some have alleged, code were present in the equipment that would only manifest on Election Day, rather than during other dates or environments that would not be discovered during code review and performance testing, it would be expected to be detected in Election Day tests.

## **Program Scope**

Eight counties were selected to participate in the Program for the November 7, 2006 General Election, providing the opportunity to test the four different electronic voting systems currently approved for use and installed in California. Kern and San Diego Counties were selected for testing the Diebold AccuVote-TSX with AccuView Printer Module system; Orange and San Mateo Counties were selected for testing the Hart eSlate System with VBO Printer; San Francisco and Sacramento Counties were selected for testing the ES&S AutoMARK (and, in Sacramento, the Model 100 Precinct Ballot Counter (M100)); and San Bernardino and Tehama Counties were selected for testing the Sequoia AVC Edge with VeriVote Printer.

Within each of the counties, two precincts were randomly selected for testing purposes. Two electronic voting machines were tested in each of the eight counties, one from each of the two selected precincts. Test scripts were developed using official ballots or lists of contests for the selected precincts in each county.

## **Program Requisites**

The quality of the test process is critical to the success of the testing effort. Quality and security procedures were established for the testing process in each of the selected counties, and each county agreed to host the Program, provide assistance and guidance on logistical issues when needed, and adhere to the testing protocol. The selected precincts were demographically representative of each county, where possible, and randomly chosen in all cases. The tested voting machines were randomly selected, secured, and stored in secure locations. The testing proceeded without involvement of any voting system vendors.

## **Program Methodology**

A standard test methodology and a test plan were created to provide a framework for all stages of the Program, including test script development, staff role definitions, documentation of testing and discrepancies, equipment security, and records retention.

Test scripts were designed to mimic, as closely as possible, typical voter behavior, including the possibility of under-voting, over-voting, changing vote decisions, stopping before the entire ballot had been cast, writing in candidate names, voting in alternate languages, and using equipment designed to aid voters with disabilities. Scripts were specific to each precinct and contests offered in that county and precinct, and the voting patterns of the test scripts matched the party voting patterns of the county and precincts.

The test script form was designed to record requisite details of the voting process for the simulated voters and served as a means to count test votes and assist in verifying if

all votes were properly recorded, compiled, and reported by the electronic voting equipment machines being tested.

All contests, contest participants, voter demographics, script layouts and contents, and monitoring results were entered into multiple spreadsheets for tracking purposes and to verify the accuracy and completeness of the test scripts. This information was used to manage over 37,000 ballot contest selections for more than 350 precinct-level ballot contests, including statewide contests, propositions, local contests, and a total of 840 test scripts

### **Test Team Composition**

The testing team consisted of a total of forty-four individuals. Each county team was comprised of between five and six individuals including, at a minimum, one Secretary of State employee and two VIP consultant testers. Each county team also had two videographers to capture and document all testing activities. Each tester and auditor received substantial training, and videographers received a minimum of one hour of conference call instruction, along with written materials.

### **Test Execution**

Test teams arrived at their assigned counties the day prior to the election, when they met with county election staff and previewed the testing room and facilities. Test teams began their assigned duties prior to 6:00 a.m. on November 7, 2006, and began their testing at 7:00 a.m. when the polls were scheduled to open, performing their specific operations until balloting concluded at 8 p.m., the hour at which polls closed. The schedule provided for over ten hours of testing over a thirteen-hour period.

During the course of the testing, the teams completed discrepancy reports for any deviations from the test script and/or test process, and for any issues related to equipment malfunction.

At the completion of the testing, teams produced the closing tally reports for their assigned voting machines. The test teams did not reconcile the tally tapes in the field and had no knowledge of the expected outcomes or actual results.

The analysis of the data and the reconciliation of actual-to-expected results began on November 8, 2006. The analysis included a review of the tally tapes and discrepancy reports for all counties, and the videotapes and Voter Verified Paper Audit Trails (VVPATs), as necessary, to determine the source of any identified discrepancies.

## Parallel Monitoring Program Findings

The electronic voting machines tested on November 7, 2006, **accurately recorded all of the votes cast on those machines.**

Parallel monitoring was successfully completed in all eight counties. However, because it was discovered after actual testing was underway on Election Day, that the memory cards for the voting machines tested in San Mateo County had been inadvertently programmed by the county for Test Mode rather than for Election Mode, the test of that county's equipment cannot be deemed to have been conducted in a true Parallel Monitoring environment.

In all counties and precincts where the Program was operated, the actual results exactly matched the expected results for all contests after adjustments were made for the noted discrepancies that were caused by human errors in test execution or test design.

The following report documents the results of the Parallel Monitoring Program conducted on November 7, 2006 in Kern, Orange, Sacramento, San Bernardino, San Diego, San Francisco, San Mateo, and Tehama Counties.



## **I. Parallel Monitoring Program Introduction**

## I. Parallel Monitoring Program Introduction

The adoption of Direct Recording Electronic (DRE) or electronic voting machines by California counties gave rise to public concerns about the security and accuracy of these systems. The principle concern expressed has been the possibility that actual votes could be incorrectly recorded and tabulated, either from software bugs or intentional software code to manipulate the vote results. It has been further suggested that such code could be sophisticated enough to detect testing and remain dormant except during an actual election.

With the statewide introduction of several brands of newly acquired voting systems, purchased and installed to meet Help America Vote Act (HAVA) requirements, it was imperative to find a means of verifying the accuracy of these systems under actual election conditions. As of January 1, 2006, this new generation of electronic voting machines also must include the Voter Verifiable Paper Audit Trail (VVPAT) feature pursuant to state law.

Secretary of State Bruce McPherson placed conditions on the certification of many of these voting systems. One of the conditions was the requirement to participate in the Parallel Monitoring Program (Program). The Program was first established in 2004 as a supplement to the current federal, state, and county accuracy testing processes for electronic voting machines, which occur prior to an election and do not reflect actual voting conditions. The Secretary of State, in conjunction with eight participating counties, implemented the Parallel Monitoring Program for electronic voting machines in the November 2006 General Election.

Recent recommendations of the Brennan Center Task Force on Voting System Security were incorporated into the November 2006 Program in an effort to address perceived weaknesses of previous such Programs. Examples of changes in the Program for this election cycle included altering the precinct and voting machine selection methodologies to make them more objectively random and transparent, and making the test scripts and simulated votes more closely reflective of realistic voter trends from each of the selected precincts.

The consulting firm of Visionary Integration Professionals, LLC (VIP) was engaged to implement the Program for the November 2006 General Election. The Program provided for the random selection of voting machines in representative precincts of the eight selected counties, covering each type of electronic voting machine currently certified for use and installed in California. The voting machines were to be set aside to be tested on Election Day, simulating actual voting conditions, and to determine the accuracy of the machines.

The California Secretary of State's Office has conducted a parallel monitoring program for three previous statewide elections. In the March 2004 Presidential

Primary Election, eight counties using electronic voting equipment were selected for testing. In the November 2004 General Election, ten counties using electronic voting equipment in the election were selected for testing. In the November 2005 General Election, six counties participated. The Parallel Monitoring Reports from all previous elections are available on the Secretary of State's web site.

## **II. Parallel Monitoring Program Overview**

## II. Parallel Monitoring Program Overview

The Parallel Monitoring Program (Program) has been developed as a supplement to the current reliability, volume, source code, logic and accuracy, and acceptance testing processes for electronic voting machines and is conducted as an addition to the ongoing security measures and use procedures currently required by the Secretary of State. It is designed to verify that votes are accurately recorded and counted on electronic voting equipment throughout the state on Election Day.

Current federal, state and county testing of electronic voting machines occurs during federal qualification testing, state certification examination and jurisdiction acceptance testing prior to use in actual elections. Further, each jurisdiction conducts logic and accuracy testing of the system and of its specific election programming prior to each election in which the system is used. These testing processes cannot reflect real-life voting conditions. Therefore, the Program was developed as an effort to test systems under real-life Election Day conditions (see Appendix A – Parallel Monitoring Program Overview and Procedures).

### A. Program Purpose

The goal of the Program is to verify that there is no malicious code altering the vote results under voting conditions on Election Day by testing the accuracy of the machines to record, tabulate, and report votes using a sample of voting machines in selected counties and voting test scripts against which expected results can be measured.

### B. Program Scope

Eight counties were selected to participate in the Program for the November 7, 2006 General Election. The eight counties provided the opportunity to test the four different electronic voting systems currently approved for use and installed in California:

**Table 1 - Electronic Voting Machine Vendors, Machines, and Counties**

Electronic Voting System	Electronic Voting Equipment	Counties
Diebold Election Systems (Diebold)	AccuVote-TSX with AccuView Printer Module	Kern, San Diego

Electronic Voting System	Electronic Voting Equipment	Counties
Election Systems & Software (ES&S)	AutoMARK Voter Assist Terminal Model 100 Precinct Ballot Counter	Sacramento, San Francisco
Hart InterCivic (Hart)	eSlate System with VBO Printer	Orange, San Mateo
Sequoia Voting System (Sequoia)	AVC Edge with VeriVote Printer	San Bernardino, Tehama

### C. Program Requisites

The quality of the test process determines the success of the testing effort. Quality and security procedures were established for the testing process in each of the selected counties. The following procedures were implemented with all counties participating in the Program:

1. The counties agreed to host test teams on November 7, 2006;
2. The selection of two precincts demographically representative of each selected county was randomly determined using demographic information provided by the counties (if the information was not available, two precincts were randomly chosen without regard to demographic representation);
3. The selection of voting equipment in each of the counties was randomly determined utilizing an observable and random process to eliminate human error or bias;
4. The county's voting equipment was fully operational and prepared for the November 7, 2006 General Election prior to the random selection above;
5. Tamper-evident serially numbered security seals were placed on the selected voting machines immediately after their selection to detect any tampering or alteration of the voting machines after their selection and prior to the testing on Election Day;
6. A secure storage area was available in each county to house the selected voting equipment prior to the November 7, 2006 General Election;
7. A secure, appropriately equipped testing room was available at each county for use by the test team on November 7, 2006;
8. A county representative was available to assist or provide guidance on logistical issues while the team was in the county prior to and on November 7, 2006;
9. Testing on November 7, 2006 was conducted by the test teams without the involvement of voting system vendors; and

10. A secure storage area was made available in each county to house the selected voting equipment after testing on November 7, 2006 and until released by the Secretary of State.

### **III. Program Methodology**



### III. Program Methodology

For each of the participating counties, the Secretary of State randomly selected two precincts for testing. If voting machines were pre-assigned to specific precincts, one voting machine from each of the two selected precincts was randomly selected for testing. If voting machines were not assigned to specific precincts and the voting machines were programmed for all ballot types, two voting machines from the entire county inventory were randomly selected. There were minor variations in the selection methodology for both precincts and voting machines due to different voting machine assignment strategies in the eight counties, as described in Sections A and B below.

These selection methodologies conform to the recommendations of the Brennan Center Task Force on Voting System Security:

*The development of transparently random selection procedures for all auditing procedures is key to audit effectiveness. This includes the selection of machines to be parallel tested or audited.... The use of a transparent and random selection process allows the public to know that the auditing method was fair and substantially likely to catch fraud or mistakes in the vote totals.<sup>1</sup>*

After selecting precincts and the voting machines to be used for the program, the voting equipment was secured at the county until the testing began on Election Day, as described in Section C below. The testing methodology for the Program is described below in Sections IV-VII.

#### A. Precinct Selection Methodology

Two precincts were selected for testing at each of the eight counties chosen by the Secretary of State for the Program. An observable random process determined the selection of the precincts in each of the counties.

An effort was made to ensure that the selected precincts were representative of the demographics of their respective counties. In order to accomplish this and to maintain a degree of randomness for the selection, a new method of selecting the precincts was required for the Program this year. The reason for this change was to help ensure that the votes used in the testing (which were broken down by each county or precinct's party demographics) were representative of the real votes that would be cast on each voting machine.

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<sup>1</sup> From "The Machinery of Democracy: Protecting Elections in an Electronic World", a report produced by the Brennan Center Task Force on Voting System Security, Lawrence Norden, Chair, 2006.

In order to generate a list of precincts that demographically reflected each respective county, the counties provided the votes cast by political party for each precinct from the previous statewide election, if the information was available. The data allowed a statistical breakdown of the party demographic information by precinct. The selection of the precincts in each county was made by first determining which political parties made up 1% or greater of the total votes across the entire county in the previous statewide election – any party with less than 1% of the votes was excluded from the selection process. The percentage breakdown of votes by party in each precinct then was analyzed to determine the average and the standard deviation by precinct. A subset of precincts that are representative of the counties was created by selecting only the precincts in which the percentage of votes cast for each applicable political party fell within the range of one standard deviation above or below the average percentage for each party. Then, two precincts were randomly selected from that subset of precincts in each county.

For example, assume all of the votes in a county in the previous election were split between two parties (both had over 1% of the total votes across the county). In this example, the only precincts that would be in the subset used for the random selection would be determined by taking the average of the percentage of votes cast for each party for each precinct, and then selecting a subset of only precincts that fall within one standard deviation of the average for both of the parties.

The random selection of precincts from each subset was accomplished by rolling multiple ten-sided dice to generate numbers representing the precincts. The ten-sided dice were newly purchased for the Program, and the dice were all translucent to ensure that they were not weighted. Each die was a different color so that each could clearly represent one digit of a large number (e.g. a translucent red die would represent the 1000's digit, a light translucent blue die would represent the 100's digit, a dark translucent blue die would represent the 10's digit, and a translucent yellow die would represent the 1's digit).

Before rolling the dice, the subsets of precincts for each county were arranged in alphabetical lists by precinct name (or ascending numerical lists if precinct names were not provided), and each precinct was assigned a number from zero (0) to the maximum number of precincts in the subset minus one (because the first precinct was assigned "zero" instead of "one").

To randomly select the precincts, three or four ten-sided dice were rolled independently for each precinct. This produced a three or four-digit number corresponding to the numbers assigned to each precinct. If the number rolled by the dice was higher than the total number of precincts in the subset, the dice were re-rolled until a number within the desired range was rolled and two precincts were selected. Two alternate precincts were selected using this

methodology, in the event that the first precincts were not valid for the testing process (e.g. zero count precincts or mail ballot only precincts).

This selection methodology not only eliminated human error or bias from the selection process, but also was easily observable, and the entire selection process was videotaped. This method of random selection was recommended and described in detail in "The Role of Dice in Election Audits".<sup>1</sup>

To summarize, the selection process consisted of the following steps:

1. Receive demographic data from each county reflecting the voting patterns by precinct in the previous statewide election.
2. Calculate the average of the percentage of votes cast by political party across all of the precincts. Use only the parties that have at least 1% of the votes for the precinct subset selection process.
3. Calculate the standard deviation of the percentage of votes by party across all of the precincts.
4. Determine which precincts fall within +/- one standard deviation of the average of the percentage of votes cast by party for all of the applicable parties (as determined in Step 2).
5. Arrange a list of the precinct names for each county in ascending alphabetical order. If the county does not provide the names of all precincts, arrange the list in ascending numerical order.
6. Assign sequential numbers to each precinct in a list, ranging from 0 to the maximum number of precincts in a subset (minus one).
7. Randomly select two precincts from the subset by rolling three ten-sided dice independently for each precinct, which produces a three-digit number corresponding to the numbers assigned to each precinct. If there are over 1,000 precincts in a subset, four ten-sided dice are required to produce a four-digit number representing a precinct. If the number rolled by the dice is higher than the total number of precincts in the subset, the dice are re-rolled until a number within the desired range is rolled and two precincts have been selected.
8. Using the same process as described in Step 7, select two alternate precincts to use for each county, in case one or both of the randomly selected precincts is not valid for the testing.

If a county provided no precinct-level information, its precincts were chosen randomly from all of the county precincts using the same method, but using a list of all of the county's precincts rather than a subset.

Although this method of precinct selection precluded certain precincts from being selected, the counties did not know how the precincts were selected until after the process was completed. In addition, the selection process was a

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<sup>1</sup> Arel Cordero, David Wagner, and David Dill, June 15, 2006.

combination of a statistical and demographic breakdown of the county's precincts and an observable random selection process. The combination helped to ensure that the testing simulated real voting conditions on Election Day as accurately as possible.

## **B. Voting Machine Selection Methodology**

Two voting machines (one per precinct) were selected for testing in each county chosen by the Secretary of State for parallel monitoring. One of three observable random processes determined the selection of the voting machines in each of the counties:

### **First Selection Methodology**

If available, the counties provided a list of the serial numbers of the voting machines that were pre-assigned to each precinct. Once the precincts for the county were selected, the voting machine for each precinct was selected by randomly drawing the serial number of one machine. The drawings consisted of numbered tickets representing each machine assigned to a precinct being placed into a bag. The tickets were mixed well, and one ticket (representing a voting machine serial number) was drawn for the precinct.

The voting machines for Kern, San Diego, and Tehama Counties were selected using this methodology, and the selection process for each county was videotaped.

### **Second Selection Methodology**

When the county could not provide in advance the list of machines assigned to each precinct, another variation of this method was employed for selecting voting machines from among large numbers of machines in the county. In those instances, tickets that represented rows, shelves, stacks of machines, and then specific machines were drawn from a bag. The drawings were done in stages (i.e. a row was selected first, then a shelf, then a stack on the shelf, and then a machine in the stack).

The voting machines for Sacramento, San Bernardino, and San Francisco Counties were selected using this methodology, and the selection process for each county was videotaped.

### **Third Selection Methodology**

In counties where the voting machines were not pre-assigned to a specific precinct, the voting machine selection was accomplished using a method similar

to that used to select precincts from within a county. This is because the number of voting machines used by the entire county, rather than a single precinct, was too great to efficiently allow a random drawing using tickets.

In this circumstance, the county provided the serial numbers of each voting machine in the county inventory, and the numbers were arranged into a list in ascending numerical order. Each machine was assigned a number from zero (0) to the maximum number of voting machines in the county minus one (because the first machine was assigned “zero” instead of “one”). Then, in a manner similar to the precinct selection, multiple ten-sided dice were rolled independently to generate numbers indicating which two machines were tested. If the dice roll generated a number higher than the total number of machines in the list, the dice were re-rolled until two appropriate numbers were generated. Alternate machines were also selected using this method in case the selected machines were not available for parallel monitoring (e.g. the equipment was faulty, being used for training, or had already been distributed to poll workers).

This process randomly selected machines from the total number of voting machines in the county inventory. As with the random drawing methodology, this process not only eliminated human error or bias, but also was easily observable, and the selection process was videotaped.

The voting machines for Orange and San Mateo Counties were selected using this methodology, and the selection process for each county was videotaped.

Table 2 below includes the precincts and voting machine serial numbers selected for each county. Each machine was also assigned a letter, which was included in test script numbers (e.g. A1 for the first test script for Kern Precinct 323).

**Table 2 - Selected Precincts and Voting Machine Serial Numbers**

County	Precinct	Machine Serial Number	Assigned Machine Letter
Kern	323 – Bakersfield 323-S	205164	A
Kern	3320 – Taft 2	204419	B
Orange	63045 - Orange	C01032	C
Orange	58318 – Laguna Niguel	C00E75	D
Sacramento	0026732	AM0105480321	E
Sacramento	0049310	AM0105481077	F
San Bernardino	Del Rosa 4	28862	G
San Bernardino	Needles 1	29797	H
San Diego	413710 - Encinitas	217598	J
San Diego	467590 - Santee	231375	K

County	Precinct	Machine Serial Number	Assigned Machine Letter
San Francisco	2409	AM0206442492	L
San Francisco	1101	AM0206443408	M
San Mateo	2665	C040B2	N
San Mateo	3624	C040BB	P
Tehama	10030	21862	Q
Tehama	32350	21869	R

### C. Securing Testing Equipment Methodology

Representatives from the Secretary of State's Office traveled to each county and met with county representatives for the purpose of identifying and securing the voting equipment. This selection and storage occurred on a timeline arranged between the Secretary of State and each county during the time after the county completed programming and sealing, according to normal procedures, but before distribution to polling places. As in previous programs, the machines were not removed from polling places as part of the Program.

The Secretary of State representatives identified the equipment using the methodology outlined above and documented the selection on the Voting System Component Selection Form (see Appendix B – Voting System Component Selection). Secretary of State tamper-evident, serially numbered security seals were affixed to the equipment (see Appendix C – Equipment and Tamper-Evident Seal Index). The equipment was then segregated from the balance of the county inventory and secured and housed on the county premises until November 7, 2006. Encoders or voter card activators, voter access cards, supervisor cards, printers, and other items necessary for testing were also secured.

The counties provided additional equipment required to conduct the testing, which varied by county and the type of voting machines. The additional equipment included, but was not limited to: card activators for each voting machine, supervisor cards, voter cards (several in case of failure), spare printers and paper, passwords to open or close polls, precinct codes, and the voting machine keys. The counties also provided official ballots or contest lists and the county's poll worker guide including instructions for opening and closing of the polls and procedures to use in the event of equipment malfunction.

After securing the voting equipment, the Secretary of State representatives and the county representatives identified a secure, appropriately equipped location with controlled access within the county's main election office in which to conduct the testing on November 7, 2006. San Francisco was unable to provide an adequate location in the main election office, so another secure facility was provided to both store the equipment and use for the testing activities.

Table 3 includes the dates that the voting machines and other equipment were secured in each county.

**Table 3 - County Machine Selection Activities**

County	Representatives	Voting Machine Equipment	Other Testing Equipment	Date Secured
Kern	Jason Heyes - SOS David Childers - VIP	Diebold AccuVote TSX with AccuView Printer	Spyrus (2), voter access cards, supervisor cards, voting machine keys	10/25/06
Orange	Jason Heyes - SOS David Childers - VIP	Hart eSlate with VBO Printer	Judge's Booth Controllers	10/25/06
Sacramento	Jason Heyes - SOS Brian Fitzgerald - VIP David Childers - VIP	ES&S AutoMARK and ES&S M100 Optical Scanner	AutoMARK keys	10/20/06
San Bernardino	Jason Heyes - SOS David Childers - VIP	Sequoia AVC Edge with VeriVote Printer	Card activators, voter cards, spare printers	10/18/06
San Diego	Jason Heyes - SOS David Childers - VIP	Diebold AccuVote TSX with AccuView Printer	Voter access cards, supervisor cards, voting machine keys	10/28/06
San Francisco	Miguel Castillo - SOS Larry Lin - VIP	ES&S AutoMARK	AutoMARK keys, spare ink cartridges	10/31/06
San Mateo	Jason Heyes - SOS Brian Fitzgerald - VIP	Hart eSlate with VBO Printer	Judge's Booth Controllers	10/26/06
Tehama	Jason Heyes - SOS Brian Fitzgerald - VIP	Sequoia AVC Edge with VeriVote Printer	Card activators, voter cards	11/1/06

## **IV. Test Methodology**



## IV. Test Methodology

A test plan was created to provide a framework for: developing test scripts; defining the roles of the testers, test auditors, videographers, alternates and team leads; documenting testing activity and discrepancies; ensuring equipment security; and retention of test artifacts.

A test script represents a ballot cast by a simulated voter. Each script represented the attributes of a typical voter (party preference, language, drop-off rate, etc.) and specified a candidate/ballot measure for which the tester should vote in a specific contest. Test scripts served as the primary tool to achieve the main goal of validating the accuracy of the electronic voting machines. The test scripts were designed to mirror the actual voter experience at each selected precinct. The test script form was laid out to record requisite details of the voting process for a “test voter” and served as a means to tally test votes and assist in verifying if all votes were properly recorded, compiled, and reported by the voting machine.

For each of the eight counties participating in the Program, the number of test scripts developed was based upon: 1) the average number of votes in the previous election, if the data was available and 2) if the average number was very low due to low usage of the voting machines in the previous election, a minimum of fifty test scripts were created for each precinct both to provide adequate testing and to approximate the numbers represented in the other counties. The test scripts were different for each precinct to reflect the different contests on the precinct ballots. Each county’s precincts had different test scripts to reflect the different contests on the local ballots, so there were a total of sixteen different sets of test scripts used in the Program.

All contests, contest participants, voter demographics, drop-off rates, script layouts and contents, and reporting results were entered into multiple spreadsheets for tracking purposes. This information was used to manage over 37,000 voter selections, for more than 350 precinct-level ballot contests, including statewide contests, propositions, and local contests and a total of 840 test scripts. In addition, the spreadsheets containing the information also helped to verify the accuracy and completeness of the test scripts.

### A. Test Script Development

All contests, contest participants, propositions, voter demographics, test script layouts and contents, and monitoring results were entered into a series of spreadsheets that were used to help verify the accuracy and completeness of the

test scripts, and to generate reports from the script data contained in the spreadsheet to verify:

- Coverage of all contests and contest participants
- Contest drop-off rates (under-voting)
- Vote selection changes
- Language choice
- Write-In candidates

Because of the very large number of test scripts and contest selections, VIP reviewed a sample of test scripts from each precinct to verify that the test scripts matched the ballot information (the contests and the order of contests and candidates) for each precinct. However, this sample, which was intended as a quality control measure to ensure that the test scripts were accurate, failed to identify some errors in the test scripts.

One of the errors was the duplication of contests that replaced other contests – for example, two instructions to vote for Attorney General and no instructions to vote for Insurance Commissioner. Another type of error was replacing candidates from one precinct with candidates from the other precinct at the county. These errors were primarily the result of copy and paste errors in the spreadsheet by the consultants that were not present in the samples of test script reviewed for each precinct. In the future, a larger number of samples, or a review of every test script would reduce or eliminate these types of test script errors.

A second type of test script errors resulted from changes in the county ballots after the counties had provided VIP with ballot information. Examples of this type of test script error included both contests that had changed, and candidates that had changed (added, removed, or changed spelling). These types of errors made up the majority of the test script errors. The only way to have avoided these types of errors would have been to get or verify ballot information from the counties later in the process – VIP verified the ballot information when they visited each county to select the voting machines, but this process did not prevent the errors.

All of the test script errors described above were the result of human error rather than voting machine error, and they are described in more detail below in Section VIII – Parallel Monitoring Program Findings.

## B. Test Script Characteristics

The recommended regimen for parallel testing includes generating scripts in a way that “mimics voter behavior and voting patterns for the polling place.”<sup>1</sup>

The number of scripts created for each precinct was based on historical data and was representative of the use of the voting machines in the previous election, if feasible. In cases where the usage of the machines in the previous election was deemed to be too low to run parallel testing with confidence, a minimum of fifty test scripts were generated. Examples of situations where this was required included San Mateo, which was using electronic voting machines for the first time, and counties that have used electronic voting machines primarily for voters with disabilities in previous elections – in many of those situations, the average number of votes cast on individual electronic voting machines was lower than ten.

The test scripts run for every precinct were different due to differences in the ballots and local contests. This allowed the test scripts to cover a larger percentage of voting permutations while remaining within the representative usage of the given machine and polling place (see Appendix D – Test Script Characteristics by County). This is different from the process used in previous parallel monitoring programs, in which only one precinct from each county was selected.

In addition, if there were any malicious code that could recognize voting patterns on the voting machines, the use of different test scripts per precinct should reduce the likelihood of the scripts being recognized as part of a parallel testing program because no voting machine will receive votes for every candidate or even have the same voting patterns. Again, according to “The Machinery of Democracy: Protecting Elections in an Electronic World”:

*The Trojan Horse may determine that the machine is being parallel tested by looking at usage patterns such as number of votes, speed of voting, time between voters, commonness of unusual requests like alternative language or assistive technology, etc.*<sup>2</sup>

The test scripts for each precinct matched the official ballots or lists of contests provided by each county for the selected precincts (see Appendix E – Test Script Options). As such, the test scripts for each precinct included the following types of contests:

- Federal elected offices
- Statewide candidate elective offices

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<sup>1</sup> Brennan Center Task Force on Voting System Security, Lawrence Norden, Chair, 2006.

<sup>2</sup> Ibid

- Statewide propositions
- Local issues, including local elected offices and local measures

### **C. Test Script Coverage**

In addition to voter language choice and contest selection based upon normal precinct demographics, the following variations were included in the test scripts:

- Attempt to over vote (if possible on the voting machine)
- Cancel ballot (or time out a ballot, depending upon the voting machine)
- Attempt to reuse a voter access card or code
- Attempt to reuse a ballot (for AutoMARK voting machines)
- Cast a blank ballot
- After voting for a candidate or proposition, change the vote on the same screen
- After voting for a candidate or proposition, change the vote after returning from the subsequent screen
- After voting for a candidate or proposition, change the vote after returning from the confirmation/review screen
- Write in a candidate

These variations were distributed across counties and voting machines so that no single precinct would contain every one of the variations. In general, at least 90% of the scripts were comprised of regular votes (without these variations). Since each precinct had different test scripts, the intent was to cover all of the contests and as many of the candidates available for the two selected precincts within a county with at least one test script from one of the two precincts. However, this was not always possible if the demographics by party of the county precluded votes for particular candidates.

### **D. Contest Drop-off Rates**

Drop-off rates, also called under-voting rates, indicate the percentage of ballots that do not have votes cast for a particular contest. Each county's scripts were designed to mirror the actual contest drop-off rates experienced in the June 2006 Primary Election (see Appendix F – Drop-off Rates by County and Contest Type). The drop-off rate ranged from 0-60% across all contests and precincts.

Using numbers provided by the counties, where available, the drop-off percentage rates for each countywide contest were calculated by determining the votes cast in each contest as a percentage of the total number of people who voted. Similar rates were used for local contests. Drop-off rates for propositions were calculated using the percentages of votes not cast for propositions from the June 2006 Primary Election:

[http://www.ss.ca.gov/elections/sov/2006\\_primary/sov\\_detail\\_primary\\_props.pdf](http://www.ss.ca.gov/elections/sov/2006_primary/sov_detail_primary_props.pdf)

## **E. Vote Selection Changes**

The test scripts contained several different types of vote selection changes designed to mimic normal voter corrections:

- Changing a vote on the same screen
- Changing a vote on the previous screen
- Changing a vote from the final confirmation/review screen

## **F. Test Script Language Choice**

The percentage of scripts covering languages other than English was based on both a combination of county statistics for voters that have requested ballots in other languages as well as the county requests to the Secretary of State for ballots in a foreign language. The language capabilities of the voting machines were also verified with each county during the voting machine selection.

At the precinct level, percentages for languages other than English have been rounded up to the nearest whole percentage. If a particular precinct did not record any votes in a particular language, then the test scripts did not test for that language in order to mimic the actual voting conditions for the specified precinct. Although there were fewer than 100 test scripts in each of the tested precincts, there was a minimum of one script in each language that had at least a 1% representation (see Appendix G – Language Choice by County).

Although the scripts themselves were written in English, the testers were provided with ballots in English and in the language(s) being tested. This enabled them to verify that the language and choices displayed on the voting machine matched those on the ballot without having to use people who are fluent in the chosen languages. The English language ballots also were provided as a reference. No languages other than English were tested using audio headsets.

In addition to English, the following language selections were covered in test scripts:

- Chinese
- Korean
- Spanish
- Vietnamese

The language selections by county were:

- Kern – English
- Orange – English, Chinese, Korean, Spanish, Vietnamese

- Sacramento – English
- San Bernardino – English, Spanish
- San Diego – English
- San Francisco – English, Chinese, Spanish
- San Mateo – English
- Tehama – English

None of the selected precincts registered any votes in Japanese or Tagalog in the previous election. Therefore, no test scripts covered these two languages.

## **G. Write-In Candidates**

Each county had at least two write-in candidates on test scripts. Names for the write-in candidates were selected from a phone book or other type of directory rather than using famous historical names, such as George Washington or Abraham Lincoln. The reason for this was that it would be relatively easy for any malicious code to include a check to see whether names of previous presidents or other famous people were being entered for write-in candidates as an indication that the machine was in use as part of a parallel monitoring program or testing rather than regular voting.

## **H. Test Script Components**

Each test script binder contained a one-page document that contained the precinct-specific steps testers should take when voting.

Each test script consisted of the following components (see Appendix H – Sample Test Script).

- County – The name of the county was pre-printed on the form.
- Vendor – The name of the voting machine vendor and type were pre-printed on the form.
- Precinct # – The name or number of the precinct was pre-printed on the form.
- Time Block – The time block in which the test script was designated to be completed was pre-printed on the form.
- Test Number – A letter designating the precinct and a sequential number were pre-printed on the form.
- Start Time – The tester completed the actual time the test script was initiated.
- Tester – The tester executing the test script completed their name or initials on the form.
- Test Auditor – The tester completed the name or initials of the test auditor on the form.

- Videographer – The tester completed the name or initials of the videographer on the form.
- Serial Number – The serial number of the electronic voting machine was pre-printed on the form.
- Ballot Type – The ballot type of the precinct was pre-printed on the form.
- Language – The language to be selected for the script was pre-printed on the form.
- Notes – If the test script contained any variations from a normal test script or ballot, instructions were pre-printed in this section at the top of the script, as well as at the relevant contest. Examples of variations described in notes included write-ins, voter card reuse, cancelled ballots, and over-votes.
- Contest and Selection – every contest for the specific ballot was preprinted on the test script along with the candidate or choice the tester should select. Each contest and selection had a corresponding location for the tester to indicate that they had voted correctly, for the test auditor to indicate that they had confirmed the vote, and for a discrepancy, if needed.

## **V. Test Team Composition and Training**



## **V. Test Team Composition and Training**

The program testing team was comprised of a total of forty-four individuals, including eight Secretary of State employees, twenty VIP consultant testers, and sixteen videographers from South Coast Studios (see Appendix I – Team Member Index). Each county team consisted of five to six individuals, at least one of whom was a Secretary of State employee.

Each county had two videographers and three or four tester/test auditors. One of the consultant test auditors at each county was designated as the team lead for the county with responsibility for oversight of all aspects of the testing process and for acting as the liaison with the county elections officials and the Project Manager at the Secretary of State.

Each testing team member, except the videographers, received at least four hours of training (see Appendix J – Training Plan and Appendix K – Training Agenda). The training consisted of background information on the Program, an overview of the testing methodology and documentation, roles and responsibilities, and hands-on training on how to use the voting machines. The voting machine vendors provided hands-on training, which included instructions on how to open and close polls (including how to set up and break down the voting machines), and how to cast ballots. The team was also trained on how to follow security protocols for the Program.

Team leads and alternate testers also received training on their additional responsibilities in the counties. Four of the testers were trained as alternate testers and were fully trained on two different types of voting systems so that they could work as alternate testers in at least two different counties. These four individuals were able to go to a different county and act as a team lead, tester, or test auditor, in case of an emergency.

A representative for the videographers from each county team participated in a training conference call to review their responsibilities and to better prepare them for their recording activities on Election Day.

### **Kern County Test Team**

The Kern County testing team consisted of two consultant testers, one Secretary of State tester, and two videographers. One of the testers in another county was trained on how to use Kern County's Diebold AccuVote TSX voting machines. This person was prepared to serve as an alternate tester for Kern County, in case one of the testers was not able to work on Election Day.

### **Orange County Test Team**

The Orange County testing team consisted of three consultant testers, one Secretary of State tester, and two videographers. One of the consultant testers was trained on the voting equipment used in another Southern California county and was prepared to serve as an alternate tester for that county.

### **Sacramento Test Team**

The Sacramento County testing team consisted of three consultant testers, one Secretary of State tester, and two videographers. One of the consultant testers in Sacramento was trained on the voting equipment used in another Northern California county and was prepared to serve as an alternate tester for that county.

### **San Bernardino Test Team**

The San Bernardino County testing team consisted of two consultant testers, one Secretary of State tester, and two videographers. One of the testers in another county was trained on how to use San Bernardino County's Sequoia AVC Edge voting machines. This person was prepared to serve as an alternate tester for San Bernardino County, in case one of the testers was not able to work on Election Day.

### **San Diego Test Team**

The San Diego County testing team consisted of three consultant testers, one Secretary of State tester, and two videographers. One of the consultant testers was trained on the voting equipment used in another Southern California county and was prepared to serve as an alternate tester for that county.

### **San Francisco Test Team**

The San Francisco County testing team consisted of two consultant testers, one Secretary of State tester, and two videographers. One of the testers in another county was trained on how to use San Francisco County's ES&S AutoMARK voting machines. This person was prepared to serve as an alternate tester for San Francisco County, in case one of the testers was not able to work on Election Day.

### **San Mateo Test Team**

The San Mateo County testing team consisted of three consultant testers, one Secretary of State tester, and two videographers. One of the consultant testers in San Mateo was trained on the voting equipment used in another Northern California county and was prepared to serve as an alternate tester for that county.

### **Tehama Test Team**

The Tehama County testing team consisted of two consultant testers, one Secretary of State tester, and two videographers. One of the testers in another

county was trained on how to use Tehama County's Sequoia AVC Edge voting machines. This person was prepared to serve as an alternate tester for Tehama County, in case one of the testers was not able to work on Election Day.

Table 4 provides a summary of the test team composition for each county.

**Table 4 - County Test Team Composition**

County	Test Teams			Total
	VIP	Secretary of State	South Coast	
Kern	2	1	2	5
Orange*	3	1	2	6
Sacramento*	3	1	2	6
San Bernardino	2	1	2	5
San Diego*	3	1	2	6
San Francisco	2	1	2	5
San Mateo*	3	1	2	6
Tehama	2	1	2	5
<b>Total</b>	20	8	16	44
Total testers/test auditors, including alternates:				28

\* Indicates that one member of the county test team was trained as an alternate tester for at least one other county.

## A. Team Member Roles and Responsibilities

Roles and responsibilities were determined and assigned before training for the Program. Team leads and alternate testers were selected early in order to provide them with the necessary supplemental training. Although anyone on the team could support other team members' activities as required during Election Day, the defined roles of each team member are listed below.

The responsibility of the **tester** was to:

1. Read the test script carefully.
2. Record the information in the first section of the test script – Tester Name, Test Auditor Name, Videographer Name, and the Start Time.
3. Activate the voter access card or code in accordance with the test script.
4. Make voting selections on the screen in accordance with the test script.
5. Verify each vote selection by checking the "select" box on the script after each selection is made.
6. Stop at the confirmation/review screen.
7. Wait while the test auditor checked the vote selections for consistency with the test script.

- a) If the test auditor indicated a vote was not consistent with the test script, the test auditor was to request that the tester make the appropriate correction.
  - b) Once the test auditor indicated that all the selections were consistent with the test script, the test auditor was to request that the tester to proceed.
8. Cast the ballot.

The responsibility of the **test auditor** was to:

1. Read the test script carefully.
2. Verify that the voter access card or code was activated in accordance with the test script.
3. Verify that the vote selections made by the tester were consistent with the test script.
  - a) If vote selections were not consistent with the test script, document each vote selection that was incorrect by initialing the Discrepancy column on the script and requesting that the tester return to the appropriate screen and correct the vote selection.
    - (1) Complete a discrepancy report and request that the team lead review and sign off on the report.
    - (2) Request that the tester move forward to the confirmation/review screen.
    - (3) Review as noted above, verifying that all vote selections made by the tester were consistent with the test script, and then verbally indicating to the tester that he/she may proceed.
  - b) If vote selections were consistent with the test script, placing a check in the "verify" box on the script for each vote and verbally indicating to the tester that he/she may proceed.
4. Observe the tester cast the ballot.
5. Verify that VHS tapes and the DVDs were correctly labeled before and after tape changes.

The additional responsibilities of the **team lead** were to:

1. Ensure that the voting machines were secure at all times and that at no time were there fewer than two team members in the room with the equipment, at least one of which had to be a tester/test auditor.
2. Ensure that the Equipment Security and Chain of Custody forms were completed accurately and in a timely manner.
3. Ensure that all pre- and post-test activities were completed according to the County Activity Checklist.
4. Ensure that the test scripts were executed correctly and were consistent with the time schedule.
5. Monitor the videographers and the VHS tape and DVD labeling.

6. Ensure that discrepancy reports and logs were completed correctly and in a timely manner.
7. Ensure that all test artifacts were collected, sealed, secured and returned to the Secretary of State along with the Test Artifacts Inventory Checklist.
8. Act as the liaison for contact with the county elections officials.
9. Ensure that the Observer Guideline protocols were observed.
10. Initiate scheduled communications with the Project Manager.
11. Recognize and elevate issues, as appropriate.

The additional responsibilities of the **alternate tester** were to:

1. Work at a pre-assigned county to support the testing team there in the event that they did not need to replace a tester in another county.
2. Perform all of the tasks of the test auditors as listed above at their assigned county.
3. Receive training on two different types of voting systems.
4. Receive team lead training.
5. Be available to replace a tester or team lead in two or more counties, in the event that a primary tester was not able to perform his/her duties. The alternate must:
  - a) Be familiar with the contact information for their counties and know how to get to each location from their initially assigned county.
  - b) Be familiar with the voting equipment at all of the locations for which they were responsible.

Two videographers were at each county site. The responsibility of the **videographer** was to:

1. Record the pre-test activities including documenting the condition of the security labels, equipment movement and set-up, printing of "zero tally reports", and opening the polls.
2. Set-up the camera to capture activity as described below:
  - a. Record stationary voting machine screens throughout the course of the day beginning precisely at 7:00 a.m. (opening of the polls) regardless of whether the test team was ready to begin the testing or not.
  - b. The camera was to remain focused on the voting machine screen at all times, with the exception of changing tapes / DVDs. All testing activity on the voting machines was to stop while tapes / DVDs were changed and labeled.
  - c. Ensure that glare, a tester's hand or any other interference did not obscure any detail of each vote cast. The test number, contest and candidate selected were required to be clearly visible upon replay of the tape.
3. Change DVDs and videotapes for a voting machine at the same time to minimize interruptions to the testing and to help minimize confusion when

- reviewing the DVDs and/or videotapes. DVDs were to be encoded / finalized at that time.
4. Label tapes and DVDs, and record the information in a log. The information was to be verified by the team lead.
  5. Continue recording until the testing activity was completed and then record the closing of the voting machines, including the printing of tally tapes and attachment of security seals.

## **VI. Schedule of Activity for November 7, 2006**

## **VI. Schedule of Activity for November 7, 2006**

Non-local test teams, including at least one videographer, arrived at their assigned counties at pre-arranged times early on Monday, November 6. All non-local test team members stayed at the same hotel, and met with county representatives Monday afternoon in order to view the testing room and become familiar with the area. Test team members who were local to the county met at the county Monday afternoon but did not stay overnight at a hotel.

On the morning of November 7, 2006, the entire test team met with county representatives at the county elections office or designated location no later than 6:00 a.m. to retrieve the voting equipment from storage and to set up the testing room.

The test teams were given a checklist to ensure all required activity was accomplished in a timely manner (see Appendix L – Testing Activity Checklist).

### **A. Pre-Test Set Up**

From 6:00 a.m. to 7:00 a.m. each team was instructed to:

1. Coordinate with the video operators to ensure all relevant activity was recorded.
2. Examine and document the condition of the tamper-evident seals applied to the equipment. Complete section one of the Equipment Security and Chain of Custody form (see Appendix M - Equipment Security and Chain of Custody Instructions and Forms).
3. Set up the voting machines and required equipment.
4. Organize all equipment and supplies necessary to conduct the testing in a manner that would allow for executing the test scripts and documenting any discrepancies.
5. Generate the “zero tally” report for each voting machine following the instructions provided in the county poll worker guide or equipment manuals. (The AutoMARK voting machines do not generate these reports).
6. Open the polls for both voting machines promptly at 7:00 a.m.

### **B. Executing the Test Scripts**

Test teams were directed to follow a specific test execution schedule. The test schedule was developed based on voting trends. Therefore, more tests scripts were to be executed during peak voting times throughout the day, including early morning, lunchtime, and late evening surges in voting. The first peak of the day



was between 7:00 a.m. and 9:00 a.m., the second peak was between 11:30 a.m. and 1:30 p.m., and the last peak was between 5:00 p.m. and 8:00 p.m.

The testing periods were separated by scheduled breaks and short meal times. The number of votes cast during each testing period varied based upon the total number of votes being cast in each county. The combination of break times and testing periods were set at two hours to help minimize the number of videotape and DVD changes that would be required during testing periods.

Start and end times for testing were printed on test scripts in order to facilitate adherence to the test schedule. The test schedule provided for 10.25 hours of testing.

**Table 5 - Testing Schedule**

Activity	Start	End	# Scheduled Test Scripts (varied by county)
Set-up	6:00 AM	7:00 AM	
<b>Vote</b>	<b>7:00 AM</b>	<b>9:00 AM</b>	<b>11</b>
Break	9:00 AM	9:30 AM	
<b>Vote</b>	<b>9:30 AM</b>	<b>11:00 AM</b>	<b>6 – 7</b>
Lunch	11:00 AM	11:30 AM	
<b>Vote</b>	<b>11:30 AM</b>	<b>1:00 PM</b>	<b>9 – 10</b>
Break	1:00 PM	1:30 PM	
<b>Vote</b>	<b>1:30 PM</b>	<b>3:00 PM</b>	<b>6 – 8</b>
Break	3:00 PM	3:30 PM	
<b>Vote</b>	<b>3:30 PM</b>	<b>4:30 PM</b>	<b>4 – 7</b>
Dinner	4:30 PM	5:00 PM	
<b>Vote</b>	<b>5:00 PM</b>	<b>6:45 PM</b>	<b>9 – 10</b>
Break	6:45 PM	7:00 PM	
<b>Vote</b>	<b>7:00 PM</b>	<b>8:00 PM</b>	<b>6 – 7</b>
Close	8:00 PM	9:00 PM	
		Total:	<b>50 – 60</b>

If all of the test scripts scheduled to be completed in a testing period were completed early, testing activities ceased until the next scheduled testing time began. If any scripts scheduled for a testing period were not completed, they were completed at the beginning of the next testing period. Test scripts were always completed in sequential order.

If any test scripts were not completed when the polls closed at 8:00 p.m., testing ended and a discrepancy report was created noting the script numbers that were

not completed. If a test script was started but not completed at 8:00 p.m., the script was completed before closing the polls.

The team leads were instructed to contact the Project Manager at the Secretary of State at prescribed times: opening of the polls and initiation of testing, mid-morning, lunch break, mid-afternoon, dinner break, at the end of testing and securing the voting machines, and any time a discrepancy disrupted the normal testing schedule (see Appendix N - Tester Contact and Events Log).

The team leads also verified videotape and DVD labels throughout the day after each tape and DVD was changed.

The teams were informed that there might be observers at the testing sites, and that they were not to discuss the Program with any observers (see Appendix O – Observer Guidelines). Teams were instructed to refer observers to the Observer Guidelines prepared by the Secretary of State.

## **C. Documenting Discrepancies**

Discrepancy reports were preprinted and numbered sequentially for each voting machine. During the course of the testing, the teams completed a discrepancy report for deviations from the test script and/or test process and for any issues related to equipment malfunction. Discrepancies included testing errors and voting machine malfunctions. Discrepancy reports were also generated for technical problems with the video equipment. Discrepancy reports for videotape changes were only created when a tape change interrupted a test script during a testing period.

Exceptions to generating a discrepancy report included a tester making an incorrect selection and immediately correcting it, or a touch screen not registering a vote because the tester did not properly touch the screen. However, if a test auditor noted from the review screen that a vote was improperly selected, a discrepancy report was created and the tester corrected the vote. If a tester believed that the voting machine did not correctly register a vote when the tester properly touched the screen, a discrepancy report was noted.

Each discrepancy report was to be reviewed and signed by the team leader and logged on the discrepancy log form. Upon completion of testing, discrepancy reports and logs were returned to the Secretary of State, along with all other test artifacts (see Appendix P – Discrepancy Reporting Instructions and Forms).

If a discrepancy interrupted the testing, the team lead contacted the Project Manager at the Secretary of State's office to record the issue and get further instructions (see Appendix N – Tester Contact and Events Log). If a discrepancy

did not interrupt the testing or could be resolved by the team lead, the report was completed and testing continued on the voting machine.

## **D. Post Test Activities**

Between 8:00 p.m. and 9:00 p.m. the teams were instructed to:

1. Close the polls at 8:00 p.m., or if a test script was being completed at 8:00 p.m., closing the polls after that test script was completed.
2. Run the closing tally tape for the voting machines that produce them. The AutoMARK voting machines do not produce tally reports, but tally reports were generated in Sacramento using the M100 Precinct Ballot Counters. San Francisco does not use electronic machines to tally the ballots marked by the AutoMARK voting machines, so the San Francisco ballots were returned to the Secretary of State for manual tabulation.
3. Secure the voting machines and equipment and affix tamper-evident security seals.
4. Document the tamper-evident seal numbers and complete sections two and three of the Equipment Security and Chain of Custody Form (see Appendix M - Equipment Security and Chain of Custody Instructions and Forms)
5. Collect, inventory, and verify labels on all videotapes and DVDs.
6. Complete the Test Artifacts Inventory Checklist form ensuring all required items were collected and sealed for return to the Secretary of State's Office (see Appendix Q - Test Artifacts Inventory Checklist).
7. Return the equipment to the designated secure storage location.

In order to avoid any conflict of interest or bias, the test teams did not reconcile the tally tapes in the field and had no knowledge of the expected outcomes or actual results.

## **VII. Reconciling the Test Results**

## VII. Reconciling the Test Results

Team leaders returned test artifacts to the Secretary of State on November 8, 2006. The test artifacts included the hardcopy tally printouts from each voting machine recording the results of the “test voting” for the day (except for the AutoMARKs, which do not generate tallies or VVPATs). The test artifacts also included the VVPATs from each machine, the videotapes of the test activities, and the binders with all of the completed test scripts, discrepancy reports, activity checklists, equipment security forms, and artifact checklists. Each team leader participated in a conference call with the Project Manager and provided a briefing on how the testing proceeded in their assigned county.

The analysis of the data and the reconciliation of actual results to expected results included the following tasks:

1. The tally printout from each voting machine was compared to the expected baseline tally figures from the test script spreadsheet to identify inconsistencies between the actual results and the expected baseline tally figures (see Appendix R – Baseline Expected Tally vs. Actual Tally).
2. Discrepancy reports were reviewed and analyzed to determine what, if any, impact the described discrepancy would have on the actual results (see Appendix S – Overview of All Discrepancy Reports).
3. Variances documented in discrepancy reports were verified by completing a review of the test scripts.
4. If a discrepancy was not resolved by a review of the discrepancy reports and review of the test scripts, videotape and the VVPAT from that portion of the testing was analyzed. If the source of the variance was identified through a review of the videotape and the VVPAT, a discrepancy report was completed.

There were additional discrepancy reports completed in each of the counties that did not affect the actual results. These discrepancy forms usually related to delays in starting the testing, changing videotape, and other minor technical issues at the county. Some of the discrepancies that did not impact the tally results were significant enough to halt testing in order to troubleshoot either the voting machine or peripheral equipment, such as card activators (see Appendix T – Discrepancy Reports).

## **VIII. Parallel Monitoring Program Findings**

## VIII. Parallel Monitoring Program Findings

The electronic voting machines tested on November 7, 2006, **accurately recorded all of the votes cast on those machines.**

Parallel monitoring was successfully completed in all eight counties. However, because it was discovered, after actual testing was underway on Election Day, that the memory cards for the voting machines tested in San Mateo County had been inadvertently programmed by the county for Test Mode rather than for Election Mode, the test of that county's equipment cannot be deemed to have been conducted in a true Parallel Monitoring environment.

In all counties and precincts where the Program was operated, the actual results exactly matched the expected results for all contests after adjustments were made for the noted discrepancies that were caused by human errors in test execution or test design. For a detailed breakdown of the discrepancies and the adjusted results for each county, refer to Appendix R – Baseline Tally vs. Actual Tally.

### A. Overview of Analysis and Results

There were thirty-two discrepancy reports created for issues that affected the expected tally results for the precincts. Of these discrepancy reports, eight of the discrepancy reports recorded tester errors that impacted the tallies, and twenty-four discrepancy reports recorded errors that were the result of test script design. There were no discrepancy reports indicating that any equipment issues impacted the tally results.

A number of the discrepancies were the result of errors made by VIP in the test scripts that were discovered by the testers. The types of test script errors that testers noted included duplicated contests that replaced other contests (e.g., two instructions to vote for Attorney General and no instructions to vote for Insurance Commissioner), and incorrect contests/candidates due to late ballot changes. The late ballot changes were made by the counties after the scripts for testing had been prepared, and VIP was not notified of the changes.

There were a total of 239 individual contest errors in the test scripts due to these types of errors. 150 of the 239 were due to a ballot change for a contest in San Mateo, which occurred after the ballot was provided to VIP, and for which there were three candidates selected per ballot in the precinct. Six of the errors were due to a late ballot change in Orange County, in which a candidate was removed from one of the contests after the ballot information was provided to VIP. Eighty-three of the errors were due to copy-and-paste related errors made by VIP on the

test scripts. All of these errors made up a very small percentage (< 1%) of the more than 37,000 vote selections covered in the test scripts for all the counties. Although these errors required adjustments in the expected results of the tallies, they did not affect the validity of the testing because in all cases the testers were able to continue voting with the test scripts, and it was possible to record all of the discrepancies in order to correctly adjust the expected tally results.

In addition, the test scripts in San Diego County incorrectly stated that ballots that “timed out” on the machines would be cancelled. According to the Uniform Vote Counting Standards of California, these ballots are automatically cast by the voting machines (as they were in San Diego County). The original expected results shown in Appendix R include the vote totals from these “timed out” ballots.

The only types of discrepancy reports that were recorded as tester errors included miscast votes that were not discovered until the tally reconciliation (verified against tally tapes, VVPATs, and videotapes), miscast votes that were identified during the testing, and test scripts that were not completed by the testers due to a lack of time. There were three incidents of tester errors in casting a vote that were later discovered during the reconciliation. There was only one incident of a tester error in casting a vote that was discovered during the testing, immediately after the vote had been cast and recorded. Finally, there were a total of ninety-six test scripts that were not completed for the AutoMARK units in Sacramento and San Francisco, as noted in Section B below, due to the length of time it took to vote using the AutoMARK. The testers did not have enough time during the day to complete all their assigned test scripts. A completed discrepancy report for each voting machine explained the situation.

In San Mateo County, the voting machines were set up correctly by the testing team, in accordance with the poll worker guides for the election, and all votes were recorded properly on the machines. However, during the testing in San Mateo, the testers noticed that the JBC units displayed “Test Mode” on the screen, as well as on the tally tapes. The issue was brought to the Secretary of State team’s attention after the testing was complete, and the Secretary of State team further explored the issue during the reconciliation efforts. The MBB memory cards used in the JBC units had to be programmed for the selected precincts. When the county programmed these cards, they were inadvertently programmed for Test Mode rather than for Election Mode. Because the voting machines were not programmed exactly as they were at live polling places on Election Day, the test of that county’s equipment cannot be deemed to have been conducted in a true Parallel Monitoring environment. Discrepancy reports for each machine were created to explain the issue.

In three counties, Kern, Orange, and San Diego, variations in the actual results vs. the expected results were discovered that could not be adequately explained



by relying solely on the completed discrepancy reports. After further analysis of the voting machine tally tapes, test scripts, VVPAT, and the video record of the testing, it was determined that the source of these variations in all three counties was tester error, and additional discrepancy reports were created to account for and explain these errors.

Finally, some discrepancy reports identified issues that may require follow-up with the County Elections Official and/or the voting system vendor. It is important to note that the discrepancies noted in these situations did not impact tally results or the validity of the Program, but impacted ease of use or the functionality of the voting machines or other voting equipment.

An example of this type of discrepancy was an error message that commonly displayed on the AutoMARK voting machines. The error message, which could not be removed from the screen without restarting the machine, stated "ArgumentOutOfRangeException. Please contact an Election Official. An error has occurred." In Sacramento, the testers proceeded to cast the ballots with the error message on the machine, and in San Francisco, the machines were restarted, the incomplete ballots were spoiled, and a new ballot was inserted to start the test script again. This issue slowed the testing down and resulted in some spoiled ballots, but after troubleshooting the issue with the county, the issue did not impact the tally results in either county.

For a detailed breakdown of the expected and the adjusted results for each county, refer to Appendix R – Baseline Tally vs. Actual Tally. For an overview of the types of discrepancies for each county, refer to Appendix S – Overview of All Discrepancy Reports. To review the original discrepancy reports for each county, refer to Appendix T – Discrepancy Reports.

## **B. Analysis and Results by County**

This section provides the details of the analysis and specific test results for each county. For a detailed breakdown of the discrepancies and the adjusted results for each county, refer to Appendices R - S. Each county analysis is divided into three sections:

- Variations in Test Methodology – describes any variations from the standard test methodology.
- Comparison of Expected and Actual Results – describes the number of discrepancies that impacted the expected results for the contest tallies.
- Reconciliation of Discrepancies – describes the process undertaken to determine the source of the discrepancies and the contests impacted by the discrepancies.

<b>1.</b>	<b>Kern County</b>
	<p><b>a. Variations in Test Methodology:</b></p> <p>Opening of Polls - Polls opened late for both machines due to printer problems. One was opened at 7:40 a.m. and one at 7:41 a.m.</p> <p>The audio device would not work on one of the machines, so the votes were cast using the touch screen only (cast as a normal vote).</p>
	<p><b>b. Comparison of Expected and Actual Results:</b></p> <p>After the initial comparison of the expected and actual results, a total of three discrepancies were identified. The discrepancies resulted from a combination of tester error and test script errors.</p>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>As noted in Discrepancy Report #4 for machine 204419, VIP's error when creating the test script called for the tester to vote twice for Patricia Finney for Taft Union High School District, Governing Board Member. In this situation, the tester treated the second instance as a Do not Vote instruction for another candidate selection for the contest.</p> <p>As noted in Discrepancy Report #7 for machine 204419, VIP's error when creating the test script left one candidate selection for the Taft Union High School District, Governing Board Member blank. In this situation, the tester treated the missing instructions as a Do not Vote instruction for the contest.</p> <p>As noted in Discrepancy Report #9 for machine 204419, the tester voted Yes for Stephen J. Kane for Associate Justice 5th Appellate District instead of No. This discrepancy was not identified until after the testing was completed. After identifying a difference of one vote from the expected values for the Yes and No votes for Stephen J. Kane, the VVPAT and the videotape of the testing confirmed that the tester selected the incorrect choice for the contest and cast the ballot. A discrepancy report was created to account for the error during the reconciliation process.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests.</p>

<b>2.</b>	<b>Orange County</b>
	<p><b>a. Variations in Test Methodology:</b></p> <p>Someone visited the testing location and claimed that they wanted to film a documentary. The Observer Guidelines were provided to the individual, and the person left without filming any testing activities.</p>
	<p><b>b. Comparison of Expected and Actual Results:</b></p> <p>After the initial comparison of the expected and actual results, a total of eight discrepancies were identified. The discrepancies resulted from tester error and a late change in the ballot that impacted the test scripts.</p>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>After the test scripts were created using a sample ballot provided by the county, the candidate Robert 'Bob' Bachelor was removed from the contest for Capistrano Unified School District, Governing Board Member, Trustee Area 7. This was noted in Discrepancy Reports #1, 5, 7, 8, 10, and 12 for machine C00E75, and this impacted six test scripts that instructed the tester to cast votes for Robert Bachelor. In these situations, the tester was instructed by the Secretary of State team to not vote for one candidate selection for that contest. As noted in Discrepancy Report #4 for machine C00E75, the tester incorrectly voted No for Kathleen O'Leary for Associate Justice, Court of Appeal, 4th Appellate District, Division Three, and was unable to change the vote back to Do not Vote. The tester was able to change the vote from No to Yes and back to No, but the voting machine would not let the tester deselect the No vote and not vote in the contest. The tester also tried to change the vote from the summary screen with the same result.</p> <p>As noted in Discrepancy Report #13 for machine C00E75, the tester voted for Glenn McMillon Jr. instead of Bruce McPherson for Secretary of State. This discrepancy was not identified until after the testing was completed. After identifying a difference of one vote between the two candidates for Secretary of State, the VVPAT and the videotape of the testing confirmed that the tester selected the incorrect candidate for the contest and cast the ballot. A discrepancy report was created to account for the error during the reconciliation.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests.</p>

3.	<b>Sacramento County</b>
	<p><b>a. Variations in Test Methodology:</b></p> <p>Because Sacramento uses AutoMARK voting machines, paper ballots stamped with "Test" were used in the voting machines. After paper ballots were marked by the voting machines, the ballots were inserted into ES&amp;S M100 Optical Scan units for tabulation. Tally tapes were generated from the optical scan units, and the paper ballots were returned to the Secretary of State.</p> <p>Testers were not able to execute all of the test scripts due to the time required to cast ballots using the AutoMARK, which is a ballot marking device that marks paper ballots for voters. Of the fifty test scripts generated for each machine, only thirty scripts were completed on one machine, and thirty-one scripts were completed on the second.</p> <p>There were numerous errors throughout the day during which the following message displayed on the AutoMARK screen:</p> <div data-bbox="269 808 1247 903"><p>ArgumentOutOfRangeException. Please contact an Election Official. An error has occurred.</p></div> <p>The testers were able to continue voting on the voting machines, and the error message was visible on the AutoMARK screen for the remainder of the voting process for the current ballot. The machine correctly marked the ballots in these situations. After consulting with the county IT personnel, shutting down and then restarting the voting machine generally corrected the problem.</p>
	<p><b>b. Comparison of Expected and Actual Results:</b></p> <p>After the initial comparison of the expected and actual results, a total of eighteen discrepancies were identified. The discrepancies resulted from test script errors identified by the testers and an equipment timeout error that caused a ballot to be marked before it had been audited and corrected.</p> <p>In addition, because the last nineteen and twenty scripts were not completed on the two voting machines, the expected results required adjustments to account for the missing votes.</p>

3.	<b>Sacramento County</b>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>As noted in Discrepancy Report #3 for machine AM0105480321, due to VIP's error when creating the test scripts, some scripts instructed the tester to vote for Attorney General a second time instead of casting votes for Member of the State Assembly - Assembly District 10 (a total of twenty-seven test scripts). However, only nine of the erroneous scripts were completed by the time polls were closed. In those nine situations, the testers were instructed by the Secretary of State team to not cast votes for the Member of the State Assembly. This also resulted in no votes being cast for Albert T. Troyer for the Member of the State Assembly - Assembly District 10.</p> <p>In addition, in four instances the testers changed the original vote for Attorney General to Chuck Poochigian because of the erroneous extra test script instructions, which were the result of VIP's error when creating the test scripts. This change in votes, as noted in Discrepancy Report #4 for machine AM0105480321 (repeated for a total of four test scripts), required adjustments to the expected number of votes for Jerry Brown for Attorney General and the expected number of Do not Vote for Attorney General.</p> <p>As noted in Discrepancy Report #3 for machine AM0105481077, the summary screen errored and then timed out before the tester was ready to mark the ballot. The machine locked up on the timeout warning screen, and the ballot then was marked automatically before the machine was rebooted. Upon review, the ballot did not display a vote for Proposition 1D, although the test script called for a No vote for that proposition. The discrepancy was logged and the ballot was cast as it was marked in the optical scan unit. After subsequent review of the video record for that ballot, it was determined that the error was caused by the tester incorrectly marking the ballot.</p> <p>As noted in Discrepancy Report #5 for machine AM0105480321, the final twenty ballots were not cast. As noted in Discrepancy Report #4 for machine AM0105481077, the final nineteen ballots were not cast.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests.</p>

<b>4.</b>	<b>San Bernardino County</b>
	<p><b>a. Variations in Test Methodology:</b></p> <p>Opening of Polls - Due to technical problems with a DVD recorder, the polls were not opened on one machine until 7:20 a.m. The DVD recorder did not work, so the testing on one of the voting machines was only recorded by VHS.</p> <p>One of the card activators stopped working temporarily. The card activator indicated that all of the inserted cards were invalid, even if they would work on the other card activator. After consulting with the county and trying many voter cards, one card was accepted and activated. After that one card was activated, the machine had no further problems with any of the previously rejected cards. The cause of the temporary problem was not determined.</p> <p>The voting machines in San Bernardino County were not programmed to automatically print zero tally reports to the VeriVote printers, and the Poll Worker Guide indicated that the polls should be opened without printing the reports to the printer. The team manually printed the tally tape on one of the voting machines, and, following the Poll Worker Guide instructions, confirmed that no votes had been cast on both machines before proceeding with the testing.</p>
	<p><b>b. Comparison of Expected and Actual Results:</b></p> <p>After the initial comparison of the expected and actual results, a total of twenty discrepancies were identified. The discrepancies all resulted from test script errors identified by the testers.</p>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>As noted in Discrepancy Reports #1 and 3 for machine 28862, VIP's error when creating the test scripts replaced instructions to vote for a candidate for Member of the State Assembly - 59th District with instructions to vote for State Senator - 18th District, which was not a contest available for that precinct. In these situations, the tester was instructed to not vote for a candidate for Member of the State Assembly - 59th District. A total of nineteen test scripts were impacted by the error.</p> <p>As noted in Discrepancy Report #8 for machine 29797, VIP's error when creating a test script called for the tester to vote for Attorney General for a second time instead of Insurance Commissioner. In this situation, the tester did not vote for Insurance Commissioner and did not change the vote for Attorney General.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests.</p>

<b>5.</b>	<b>San Diego County</b>
	<b>a. Variations in Test Methodology:</b> Printer jams caused minor delays during the testing.
	<b>b. Comparison of Expected and Actual Results:</b> After the initial comparison of the expected and actual results, a total of forty-one discrepancies were identified. The discrepancies resulted from both tester error and test script errors that were identified by the testers. In addition, contrary to incorrect test script information written by the consultants, two ballots that timed-out were automatically cast rather than cancelled by the AccuVote-TSX machines. Casting the ballots was the appropriate action for both San Diego County and the Secretary of State's Uniform Vote Counting Standards, and the original expected results were appropriately adjusted to account for casting of these two ballots.

5.	<b>San Diego County</b>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>As noted in Discrepancy Report #2 for machine 217598, in the contest for Encinitas Union School District Governing Board Member, VIP's error when creating multiple test scripts erroneously instructed the tester to vote for four candidates, while the ballot only allowed three. The testers were instructed by the Secretary of State team to ignore the vote for the fourth candidate in the test scripts. There were thirty-six impacted test scripts.</p> <p>As noted in Discrepancy Report #3 for machine 217598, in the contest for City of Encinitas, Member City Council, VIP's error when creating multiple test scripts erroneously instructed the tester to vote for three candidates, while the ballot only allowed two. The testers were instructed to ignore the vote for the third candidate in the test scripts. There were three impacted test scripts (and they were all Do not Vote instructions).</p> <p>As noted in Discrepancy Report #15 for machine 217598, on one test script the tester voted No for Jeffrey King for Associate Justice, Court of Appeal, 4th Appellate District, Division Two. The tester should not have voted in that contest. This discrepancy was not identified until after the testing was completed. After identifying a difference of one vote between the No votes and votes not cast in the contest, the VVPAT and the videotape of the testing confirmed that the tester selected the incorrect choice for the contest and cast the ballot. A discrepancy report was created to account for this error found during the reconciliation.</p> <p>As noted in Discrepancy Report #14 for machine 231375, VIP's error when creating a test script called for the tester to vote twice for Robert Shield for Grossmont Union High School District Governing Board Member. In this situation, the tester voted once for Robert Shield and treated the second instance as a Do not Vote instruction for the contest.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests.</p>



6.	<b>San Francisco County</b>
	<p><b>a. Variations in Test Methodology:</b></p> <p>Opening of Polls – Due to delays in setting up the video equipment and voting machines while recording the voting machine setup with only one video camera, the polls were not opened until 7:15 a.m.</p> <p>Because San Francisco uses AutoMARK voting machines, paper ballots stamped with “Test” were used in the machines. San Francisco does not use precinct-based scanners to tabulate the AutoMARK ballots, so the marked ballots were returned to the Secretary of State for hand tabulation of the contest tallies after Election Day.</p> <p>Testers were not able to execute all of the test scripts due to the time required to cast ballots using the AutoMARK, which is a ballot marking device that marks paper ballots for voters. Of the fifty test scripts generated for each machine, only twenty-one scripts were completed on one machine, and twenty-two scripts were completed on the second.</p> <p>The AutoMARK machines required restarting and recalibrating the voting machines due to technical problems encountered on the voting machines.</p> <p>There were numerous errors throughout the day during which the following message displayed on the AutoMARK screen:</p> <div data-bbox="251 972 1230 1066"><p>ArgumentOutOfRangeException. Please contact an Election Official. An error has occurred.</p></div> <p>In San Francisco, after consulting with the county IT personnel for instructions, the testers restarted the voting machines when the error displayed, which generally corrected this problem. After the machines rebooted, the testers ejected the unmarked ballots, which were spoiled. New ballots were inserted into the machines and the test scripts were started again.</p> <p>When the machines developed long response times during the testing, the county recommended calibrating the voting machines, which was done on both machines during the day.</p> <p>One machine displayed the following error message: “Alert! A problem has occurred. Please notify an election official. There was an error while printing.” The county IT personnel indicated that to repair the machine, the unit had to be restarted. This action repaired the error, and the test script was restarted on the machine to mark a new ballot.</p> <p>The county had test scripts for Chinese ballots. However, because the AutoMARK displayed all text on the screen in Chinese, including ballot and operational instructions, it was impossible for the testers, who spoke only English, to complete the ballot in Chinese. In all test script instances where Chinese was the intended language, the testers were instructed by the Secretary of State team to select English in order to complete the test scripts.</p>

<b>6.</b>	<b>San Francisco County</b>
	<p><b>b. Comparison of Expected and Actual Results:</b></p> <p>After the initial comparison of the expected and actual results, a total of two discrepancies were identified. The discrepancies resulted from test script errors identified by the testers.</p> <p>In addition, because the last twenty-eight and twenty-nine scripts were not completed on the two voting machines, the expected results required adjustments to account for the missing votes.</p>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>As noted in Discrepancy Report #7 for machine AM0206442492, VIP's error when creating a test script called for the tester to vote twice for Anita Grier for Member, Community College Board. In this situation, the tester treated the second instance as a Do not Vote instruction for another candidate selection for the contest.</p> <p>As noted in Discrepancy Report #17 for machine AM0206442492, VIP's error when creating a test script called for the tester to vote twice for Bruce Wolfe for Member, Community College Board. The second vote erroneously replaced the Member, Board of Education candidate. In this situation, the tester voted once for Bruce Wolfe and treated the second instance as a Do not Vote instruction for the Board of Education contest.</p> <p>As noted in Discrepancy Report #22 for machine AM0206442492, the final twenty-nine ballots were not cast. As noted in Discrepancy Report #17 for machine AM0206443408, the final twenty-eight ballots were not cast.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests.</p>

<b>7.</b>	<b>San Mateo County</b>
	<p><b>a. Variations in Test Methodology:</b></p> <p>The County Assessor visited the testing area and took photographs of the testing activities.</p> <p>The JBC unit memory cards were inadvertently programmed by the county for Test Mode rather than Election Mode. There was no way to change the mode after the polls were opened, and so all votes were cast in Test Mode throughout the day. The issue was brought to the Secretary of State team's attention after the testing was complete, and the Secretary of State team further explored the issue during the reconciliation efforts.</p> <p>Because the voting machines were not programmed exactly as they were at live polling places on Election Day, the test of that county's equipment cannot be deemed to have been conducted in a true Parallel Monitoring environment.</p>
	<p><b>b. Comparison of Expected and Actual Results:</b></p> <p>After the initial comparison of the expected and actual results, a total of one discrepancy was identified. The discrepancy resulted from a test script error identified by the testers.</p> <p>In addition, on Election Day the testers discovered that the actual ballot for the designated test precinct had one different contest than the example ballot on which the test scripts had been prepared. That contest, the Sequoia Healthcare District, Board of Directors, which appeared on the actual official ballot for the precinct tested on Election Day had not been on the example ballot on which the test scripts were based. To address that situation, no votes were cast for the Sequoia Healthcare District, Board of Directors on any of the test scripts for that precinct.</p>

7.	<b>San Mateo County</b>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>As noted above, the test scripts were created using a sample ballot that included the contest for the Peninsula Healthcare District, while the official ballot for the precinct tested had, instead, a contest for the Sequoia Healthcare District. As noted in Discrepancy Report #1 for machine C040B2, this impacted multiple candidate selections on all fifty test scripts for the contest. The tester was instructed by the Secretary of State team to not vote for any candidate for that contest.</p> <p>As noted in Discrepancy Report #1 for machine C040BB, VIP's error when creating a test script called for the tester to vote twice for Jack Hickey for Sequoia Healthcare District, Board of Directors. In this situation, the tester treated the second instance as a Do not Vote instruction for another candidate selection for the contest.</p> <p>As noted in Discrepancy Report #5 for machine C040B2 and Discrepancy Report #6 for machine C040BB, the JBC unit memory cards were inadvertently programmed by the county for Test Mode rather than Election Mode. There was no way to change the mode after the polls were opened, and so all votes were cast in Test Mode throughout the day. The issue was brought to the Secretary of State team's attention after the testing was complete, and the Secretary of State team further explored the issue during the reconciliation efforts. Discrepancy reports were created to address the issue during the reconciliation.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests, although the memory cards were programmed for Test Mode.</p>

<b>8.</b>	<b>Tehama County</b>
	<p><b>a. Variations in Test Methodology:</b></p> <p>Opening of Polls – When the polls on one machine were opened at 7:00 a.m., the machine was not accepting votes because it needed to be recalibrated. After restarting and recalibrating the voting machine, testing continued without problems on the machine.</p> <p>At one point during the day, a used voter card was erroneously inserted again into one of the voting machines. The voting machine was restarted to eject the voter card, and testing continued.</p> <p>A camera news crew arrived and requested to film the testing activities. The crew was provided with the Observer Guidelines and the testing continued. The Project Manager was notified and the Project Manager contacted the Secretary of State Press Office to notify them of the filming.</p> <p>The videographers experienced some bad DVDs that prevented the recording of all testing activities on DVD. All testing was filmed on VHS, and most of the activities were recorded on DVDs. The issue was noted in discrepancy reports.</p>
	<p><b>b. Comparison of Expected and Actual Results:</b></p> <p>After the initial comparison of the expected and actual results, a total of three discrepancies were identified. The discrepancies resulted from test script errors identified by the testers.</p>
	<p><b>c. Reconciliation of Expected and Actual Results:</b></p> <p>As noted in Discrepancy Reports #10 and 14 for machine 21869, VIP's error when creating two test scripts called for the tester to vote twice for Treasurer instead of voting for Attorney General. In this situation, the tester voted once for Treasurer and treated the second instance as a Do not Vote instruction for the Attorney General contest.</p> <p>As noted in Discrepancy Report #7 for machine 21869, VIP's error when creating a test script called for the tester to vote twice for Attorney General instead of voting for Insurance Commissioner. In this situation, the tester voted once for Attorney General and treated the second instance as a Do not Vote instruction for the Insurance Commissioner contest.</p> <p>After adjustments were made for the discrepancies noted for those voting machines, the results matched exactly for all contests.</p>